

I have gained extensive experience in deep learning over the past four years. I actively participated in competitions hosted on Kaggle, DrivenData, and IEEE Signal Processing Society competitions, and earned the title of **Kaggle Competition Master**. I worked for **two years as a research intern** on multi-modal problems. Additionally, I have over a year of experience as a **Machine Learning Engineer at a Fortune500 company**. Currently, my research is focused on multi-modal event understanding tasks.

## EDUCATION

- **Master's of Science in Computer Science** Aug 2024 — Current  
*Virginia Polytechnic Institute & State University*
- **Bachelor of Science in Computer Science and Engineering** Mar 2018 — May 2023  
*Bangladesh University of Engineering and Technology*  
CGPA : 3.83 (out of 4.00) | *Enlisted for Deans List Award*

## EXPERIENCE

- **Graduate Researcher** Aug 2024 — Current  
**Computer Vision Lab**  
**Virginia Polytechnic Institute & State University**
  - Working with multi-modal event understanding and reliable MLLMs.
- **Machine Learning Engineer** Jun 2023 — July 2024  
**IQVIA**
  - Developed a GenAI-powered chat assistant for better user experience and engagement with the products.
  - Worked with clients and product managers to refine project requirements and align them with business goals and user needs.
  - Deployment AI solutions for enterprise ready SaaS product.
- **Research Intern** Jan 2022 — Feb 2024  
**Xu Lab**  
**Carnegie Mellon University**
  - Improved the understanding of different sentence components in video-language joint learning tasks.
  - Devised a solution to detect anomalous events in automated tools during experiments in a laboratory using recorded videos.

## RESEARCH PUBLICATIONS

- **"SONICS: Synthetic Or Not-Identifying Counterfeit Songs",**  
*MA Rahman\*, ZIA Hakim\*, NH Sarker\*, B Paul\*, SA Fattah*  
Under Review in International Conference on Learning Representations, ICLR 2025  
[Paper Link](#)
- **"Leveraging Generative Language Models for Weakly Supervised Sentence Component Analysis in Video-Language Joint Learning",**  
*ZIA Hakim\*, NH Sarker\*, RP Singh, B Paul, A Dabouei, M Xu*  
Accepted in 7<sup>th</sup> Multimodal Learning and Applications Workshop at CVPR 2024  
[Paper Link](#)
- **"ENTER: Event Based Interpretable Reasoning for VideoQA",**  
*H Ayub, J Liu, Z Wang, H Alomari, CW Tang, A Asgarov, MD Atabuzzaman, NH Sarker, ZIA Hakim, Shih-Fu Chang, Chris Thomas*  
Accepted in Multimodal Algorithmic Reasoning Workshop at NeurIPS 2024
- **"ArtiFact: A Large-Scale Dataset with Artificial and Factual Images for Generalizable and Robust Synthetic Image Detection",**  
*MA Rahman\*, B Paul\*, NH Sarker\*, ZIA Hakim\*, SA Fattah*  
Accepted in International Conference on Image Processing, ICIP 2023  
[Paper Link](#)

## ■ "Detecting Anomalies from Liquid Transfer Videos in Automated Laboratory Setting",

NH Sarker, ZIA Hakim, A Dabouei, MR Uddin, Z Freyberg, A MacWilliams, J Kangas, M Xu

Accepted in **Frontiers in Molecular Biosciences**

[Paper Link](#)

## ■ "Exploring Attention Mechanisms in Integration of Multi-Modal Information for Sign Language Recognition and Translation",

ZIA Hakim, RM Swargo, MA Adnan

Accepted in International Conference on Image Processing, **ICIP 2024**

[Paper Link](#)

## MACHINE LEARNING COMPETITIONS

### ■ SIIM-FISABIO-RSNA COVID-19 Detection

Aug 2021

Identify and localize COVID-19 abnormalities on chest radiograph images

4<sup>th</sup> Place out of 1305 teams. (**Gold Medal Winner at Kaggle**) | Best Student Team Award Winner

### ■ HP Presents Kaggle Days World Championship 2022

Sept 2022

Winner of Shanghai Regional

Selected as one of the top 36 data science teams globally to participate in the final event at Barcelona, Spain

### ■ Deep Chimpact

Nov 2021

Depth Estimation of animals from Images for Wildlife Conservation

Winner | 1<sup>st</sup> Place out of 313 teams

### ■ IEEE Signal Processing Cup

May 2022

Differentiation between original human speech and synthetic speech.

Winner | Presented our solution at ICASSP 2022, Singapore

### ■ IEEE Video & Image Processing Cup

Sept 2022

Synthetic Image Detection.

First Runner-up

### ■ NFL 1st and Future - Impact Detection

Jan 2021

Detection of helmet impacts between players in videos of NFL games.

25<sup>th</sup> Place out of 460 teams. (**Silver Medal Winner at Kaggle**)

## VOLUNTEER WORK

### ■ Reviewer

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2025)

### ■ Reviewer

International Conference on Learning Representations (ICLR 2025)

### ■ Organizer

Jul 2022

[DL Sprint - BUET CSE Fest 2022](#)

First Inter-University Deep Learning Competition hosted by BUET

This competition won **Kaggle Community Competition Creator Prize: July Month** for its problem statement, community involvement, and impact